Notebook, PN-88-03-25

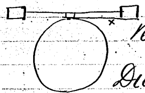
This pocket notebook was used by Charles Batchelor. The dated entries cover the period March 1888-January 1890 and relate to toy phonographs and to recording styli for phonographs. The front cover is inscribed "Toy Phono." The pages are unnumbered, and the book has been used in both directions. Approximately 40 pages have been used.

880325

Found 1952-12-30
in Letter file box
1888

Toy phono. 1888.

#1 Sunday Mch 25.



Very good talking

Diaphragm:—

Mica .006
2 $\frac{1}{4}$" diameter [4 Screws in Knrl'd r

needle held by rigid ~~spring~~ brass rod x $\frac{1}{32}$ thick & 3/16 wide at point—

Rubber between brass reed & diaphragm & needle goes through diaphragm & is shellaced to diaphragm at top side—

Drum 2½" 24 thread
Motion continuous in one direction, after talking it flies back & commence automatically.

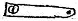
In the above the diaphragm is too large as its diameter the its travel together take too much room in the doll.
We must get it down to 1½" diaphragm

#2 Mch 27 1888

Diaphragm 1½" diam

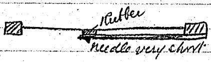
Needle .022 diam 2 screws.

Diaph. .002" diam (Blk)

Spring brass. 

¼ to ⅛ at point & thick .015

very loud & equally as good as the 2½" diaphragm



Now for best effect

#3. 1½" Diaph (2 screws)

Celluloid ivory .009

Brass arm .015

loud but rattles.

Try heavier brass

#4 2 Screws in diaph
Cell. Diaph '011
Brass '041 thick
good talking
no rattle
but low ___

#5 Celluloid '011
Brass '037 thick
good talking — low
no rattle — This was
about same as 4 and
I found this was because
diaphragm was pressed
a little more — which
accounted for & overbalanced
the thinner spring
2 Screws in diaph

#6 Celluloid diaph '011
Brass '020
rattling plain
showing brass too thin
– not loud either
2 Screws in diaph

#7 Mch. 29.
Celluloid diaph '011"
Brass '030"
rattling just ceases
now with this size
spring we will try
other diaphragms
2 Screws in diaph

#8/ 2 Screws in diaph.
I think are not enough

Brass '029
Mica '003

Diaph fastened 4 screws. Good talking - needle a little sharp so it scratches,

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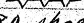
#9 Same as #8 but a sheet of tracing cloth .002 under copper No good. Could only just hear talking - Tracing cloth so stiff would not allow copper to draw.

#10 Same as #8 but needle rounded a little - Track rather shallow Talking loud & not

-Much scratch — this is
about as good as best
we have had —
— Record looks sharp
& clear.

#11 Brass .029
Mica .004
Talking very good
this equal to #10

Up to this we have had
a thread 24 to inch
& sharp we now
turn it off to flat
top  60 solid
& 50 space. or of any-
thing a little more

Solid than space.

#12 Diaph Mica ·004
Brass. ·030
Groove light owing to
smaller space in drum
with flat top
Talking very loud &
we only run it half
over to hear it—now
we make receiving
diaphragm
[illegible] Hard rubber ·009
Brass ·008

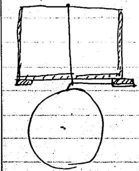
13
Receiving diaph for
#12.
Hard rubber ·009"

fine brass wire needle
fast to diaphragm
by elastic rubber
Very good talking but
low - no scratch

#14 Receiver for #12
Mica diaph .002
same needle as #13
no scratch
good talking but
too low.

#15 Iron needle of wire
.004 filed sideways
like transmitter point
#12.
paper box on top
3½ diam & 4" long

with hole cut a bottom
& thick straw board
on top for diaph - connec-
-ted by fine copper
wire to needle

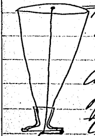


no scratch
good talking
but not
loud enough

#16 When we put in
same point & brass
as used in #12 & fas-
tened it to our
diaph as used in
15 it talked loud

but then we had also
the heavy scratching

#
17 a hard brass spring
substituted for the
insulated copper wire
gave harsh musical
sounds so that we
could not use it



#
18 A fine needle
attached to the
diaphragm on top
of a 12" cone (string)
talked very well
but too low & then
the apparatus is too
large. (6am this and
experiments up to Morning of
March 31.

#20

Saphire Exp.
Jan 1st 1890

Press'd up & melted in the arc. all passed through 170 mesh

1 Sulphate Alumina
20 tons 5 min arc
Scratches glass – not Saphyre
make larger + longer time
White –

2 Nitrate Alumina

3 Acetate Alumina

4 Chloride Alumina

5 Bromide Alumin
pressd 20t Fused 5 min.
Scratches glass easy – not
cut Saphyre. –
Scratches glass but not Saphyre
White

6 Phosphate Al.

7 Benzoate Al.

8 Hydrated Oxide Al

9 Al. pure precipitate
20 tons — Arc ½ hour
pinkish white
crystalline fracture but
a little porous.

10. Precip. Ox. Al.
Pressed 20 tons - Fused Arc 5
Scratches Glass but not Saphyre

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11 1/2 Quartz
1/2 Ox. prec. Al

---

12 1/3 Quartz
2/3 Precip. Al.

---

13 3 Boric Acid
1 Ox. Al.

14. $\frac{1}{4}$ Quartz
$\frac{3}{4}$ Ox Al

15 $\frac{1}{8}$ Quartz
7/8 Ox Al.

16 $\frac{1}{16}$ Quartz
15/16 Ox Al.

17

18. Magnesia Oxy.

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19 1 Part Alumina pp.
3 Anhy. Borax

---

20 1 Part Alum pp.
4 " Anhy Borax

21	Fluoride Al.	3
	" Chrom.	1
	Boric anhydride	1

22. #19 ½ hour

23 #19 1 hour

24 #21 ½ hour

25 #21 1 hour

26 1/2 bulk Charcoal
1/2 Tungstic Acid
Olive oil

27 1/3 1/4 Tungstic Acid
1/3 1/4 Magnetite
1/3 1/2 Charcoal
Olive oil

28. Ox Al. ½
Ox Lead (Minium) ½
Bright red in Sil. crucible
for 4 hours

Yellow crystals Sil. Lead
Ox Al. Grayish slag
Grinds on Emery wheel &
does not scratch glass
put it in Arc. Jan 15
In Arc 10 min glassy mass shiny
grey crust cuts glass easily
scratches Cy
S.

---

29 Sil Al
Flu. Al equal pts

---

30 Al. Oxide ½
Cal. Fluoride ½
Fuses readily in arc — flux
not absorbed by Carbon as
with Borax — Bead pure
white compact as porcelain
glossy surface — Does not
readily scratch glass —
In arc 30 min longer

fused to clear glass like bead.

30 A Al. 4
Cal. Fluo 1

31 Sul. Al. $\frac{1}{2}$
Sul Soda $\frac{1}{2}$
Fused 10 – bead small rather hard – glazed surface – inside flat cryst. plates – dark colored.

32. Phosp Al
Sul Soda

34 Al. 3
Cryolite 1

35 Al. 6
Fused Borax 1
Cryolite 1

Jan 16th
36 Al. Sulph 5
Cryolite 4
Al. [illegible] 4 pp
Round head button in hydraulic press 15 m in Arc
Found hard shiny button not porous —

37. Al. Corundum 2 —
Cryolite 1

38 Boric acid
Metallic Al.
Most of the Al was
volatilized — there
remained an incrust
ation — crystalline
steel white brittle
thin — cuts glass
readily — hardened.

Change poles on some as in arc continual boiling makes porous from gases from carbon coming through

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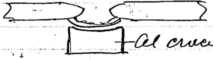

Tungstic Acid 9 – 1 Magson
" " 7 – 1 "
" " 5 – 1 "
" " 3 – 1 "

All too friable ~~for pieces~~

We cannot get a piece strong together – Hardened they ~~do~~ not easily grind on Emery wheel but are not hard or we cannot get edge enough on to cut glass. These were made on Ox. Hy. flame

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Al. 4 pts. 39
HBO_2. 1 fused
Small button very dense & shiny Not porous at all rather difficult to scratch with Saphyre. Jan 15th

41 Chm Ox 1
Magnetite 1.

42 Chrm Ox $\frac{1}{2}$
Magnetite 1

~~36 Had two knives cut from this + although not apparently so hard as 39 yet it works first rate + seems more like glass + polishes + comes to edge better + quicker~~

36-1 in arc in crucible

for 2 min

came out friable crystalline mass — soft to file — pink brown + black showing free sulphur

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39-1

Jan 21

Barium Fluoride 4
Al. Ox pp.

button in AEC not very solid but crystallin outside covered with facets

very hard & cuts glass easily Saphire cut it easy ~~still~~ it may when cut make a good knife

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Edison Phono Toy Co
95 Milk Street
Wells Fargo & Adams

[THIS BOOK WAS USED IN BOTH DIRECTIONS.
THE FOLLOWING PAGES WERE FILMED FROM
THE BACK END FORWARD.]

~~[illegible] 17, 38, 39~~

~~Wellington~~ $ 10.475

Year. Inc. 13404 500 =
2143 $ 1840 333 =
Rec. 3.330 25 Years
2173
1157

10475) 11570 (0.11
10475
10950

1157
5785
28925 10475) 7380 0 (0.0
10475.
18450
3690
738

333
1665
1625
8325

43 33 15

33 25 15

33 16 15

35 16 × 2 1120
35 18 × 2 1260
16 15 × 2 480
20 ft 2860

35 16 × 2 1120
35 27 × 2 1890
25 15 × 2 730
26 ft 3740

45 × 35 × 2 3150
33 × 15 × 2 990
45 × 16 × 2 1440
38 ft 5580

35
32
70
105
1120

35
36
210
105
1260

16
30
480

45
70
3150

35
54
140
175
1890

25
15
115
25
365
730

33
30
990

45
32
90
135
1440

2860
238
20

3740
26
22

5580
5546
438

398
446
561

1000/22000
22

21	Assemblers
4	Cleaners
36	Sold bench.
3	Assemblers.